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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,215	11/16/2001	James A. McMillen	PDI-2K02	6937
7590 03/17/2004				
Bo-In Lin 13445 Mandoli Drive Los Altos, CA 94022			EXAMINER SMITH, ZANDRA V	
			ART UNIT 2877	PAPER NUMBER
DATE MAILED: 03/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/991,215	<b>Applicant(s)</b> MCMILLEN ET AL.	
	<b>Examiner</b> Zandra V. Smith	<b>Art Unit</b> 2877	<i>AW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-22 is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 13, 16-18 and 23 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: it is not clear what “described by implant dose and implant energy” refers to. Claims 2-4 and 7 are included for their dependence on claim 1. Claim 6 includes “may have a thin oxide coating” is indefinite since the language infers that the oxide coating does not have to be present.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

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do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by *Koveshnikov et al (US 6,620,632)*.

As to **claims 1-2**, Koveshnikov discloses a method of evaluating impurity concentrations in semiconductor substrates, comprising:

a thin film supported on said monitor substrate wherein the thin film having an optical characteristic that is sensitive to said ion-implantation damage, the thin film having a reflectivity that is sensitive to ion-implantation damage (col. 6, lines 23-30 and 49-59).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Koveshnikov et al. (US 6,620,632)*.

As to **claims 6-7**, Koveshnikov discloses everything claimed, as applied above, in addition a silicon substrate is provided (col. 6, lines 15-20) with a thin film (col. 6, lines 25-30). Koveshnikov differs from the claimed invention in that a thin oxide coating is not specifically provided, however since the oxide layer is necessary for ion-implantation it would have been

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obvious to one having ordinary skill in the art at the time of invention to include a thin oxide layer. As to the thickness of the thin film, it would have been obvious to one having ordinary skill in the art at the time of invention to use a film of any thickness necessary to support implantation.

Claims 8-9, 12-13, 16-18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yang (6,373,576)* in view of *Tsuya et al. (4,682,206)*.

As to **claims 8 and 23**, Yang discloses a method for measuring concentration of dopants in a liquid carrier on a wafer surface, comprising:

measuring reflected light from a monitor (dummy) substrate with a thin film supported on the monitor substrate wherein the thin film has optical characteristics that are sensitive to ion-implantation (col. 1, lines 1-65). Yang differs from the claimed invention in that a densitometer is not provided, however to do so is well known as taught by Tsuya. Tsuya discloses thin ribbon of semiconductor material where ion-implantation is measured using a densitometer (col. 22, lines 40-60). It would have been obvious to one having ordinary skill in the art at the time of invention to use a densitometer to provide a measure of the density of ion-implantation.

As to **claim 9**, Yang and Tsuya discloses everything claimed, as applied above, in addition Yang includes a light source (13).

As to **claims 12-13**, Yang and Tsuya discloses everything claimed, as applied above, in addition Yang provides a measurement controller and the film has a reflectivity that is sensitive to the ion-implantation energy (col. 1, lines 60-68 and col. 2, lines 15-50).

As to **claims 16-18**, Yang and Tsuya discloses everything claimed, as applied above, in addition Yang provides a silicon (col. 3, line 27) substrate. As to the thickness of the thin film, it

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would have been obvious to one having ordinary skill in the art at the time of invention to use a film of any thickness necessary to support implantation.

***Allowable Subject Matter***

Claims 19-22 are allowable over the prior art of record.

Claims 3-5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 10-11 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious a thin film mixture of dye molecules with weak covalent bonds sensitive to the ion-implantation energy and dosage in a polymer matrix, in combination with the rest of the limitations of the claims.

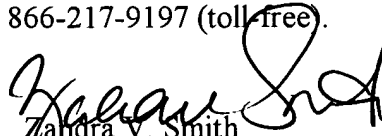
***Fax/Telephone Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Zahdra V. Smith  
Primary Examiner  
Art Unit 2877

March 5, 2004